NOAA Fisheries

National Marine Fisheries Service

NORTHEAST REGION

CURRENT BYCATCH PRIORITIES AND IMPLEMENTATION PLAN

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This is a public, working document that will be revised in the future as additional bycatch minimization opportunities occur.

November 28, 2003

Northeast Region Current Bycatch Priorities and Implementation Plan - Summary

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Monitoring

Priorities for FY04:

- Provide updated quantitative estimates of bycatch by gear and fishery
- Increase observer coverage to address regional priorities
- Incorporate review of quantitative estimates of bycatch into SAW process

Priorities for FY05:

- Increase observer coverage to address regional priorities
- Pay for sea days to supplement existing data (if funded)
- Conduct database review to identify additional existing data sources (if funded)

Research

Priorities for FY04 and FY05:

- Gear modifications to reduce bycatch in regional priority fisheries
- Study of animal behavior as it relates to development of gear to reduce bycatch in regional priority fisheries
- Participate in URI Sea Grant project to establish a regional gear engineering working group

Management

Priorities for FY04 and FY05:

- Work with Councils and Commission to address bycatch in planned management actions, implementing bycatch management measures when appropriate**,** including measures that utilize results of recent or ongoing research
- Work with Councils and Commission to consider management alternatives that provide incentives to reduce bycatch within planned management actions

Education/Outreach

Priorities for FY04:

- Hold Regional Bycatch Workshop in June 2004 to review bycatch issues, and refine priorities and objectives with constituent participation
- Hire Outreach Coordinator (NERO) to conduct outreach, including bycatch-related outreach activities
- Establish positions of Bycatch Outreach Specialist and Bycatch Gear Specialist (NERO) to work with regional partners and constituents on bycatch issues, including working directly with other gear researchers on technical solutions (if funded)

Priorities for FY05:

- Establish Annual Bycatch Forum to allow members of the gear engineering working group, other researchers, industry members, and constituents to share information about recent bycatch research and identify potential avenues for future activities (if funded)

INTRODUCTION

This plan was developed by a Regional Bycatch Assessment Team (RBAT) composed of staff from the Northeast Regional Office (NERO), Northeast Fisheries Science Center (NEFSC), the New England and Mid-Atlantic Fishery Management Councils (Councils), the Atlantic States Marine Fisheries Commission (Commission), the Atlantic Coastal Cooperative Statistics Program (ACCSP), and Rhode Island Sea Grant (RBAT members are listed in Appendix A). In addition to being incorporated into management, the RBAT hopes that the activities outlined in this plan will be incorporated, as appropriate, into programs under the aegis of the Northeast Consortium and universities, including NOAA's Cooperative Marine Education and Research (CMER) programs.

The RBAT considered the fact that the consideration of bycatch of fish, marine mammals, sea turtles, and sea birds is but one aspect of fisheries management that must be considered by fishing industry members, managers, scientists, and conservation advocates. While the Magnuson-Stevens Act (MSA) National Standard 9 requires that, "conservation and management measures shall, to the extent practicable (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch," it further prescribes that these same measures shall comport with nine other national standards and several other required provisions of the MSA. Consequently, though bycatch occasionally can be considered as a independent issue, it more often is one of many interrelated issues for which the fishery management councils develop management solutions. Therefore, bycatch solutions must be integrated into the broader management program. Actions taken under the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) to reduce protected species interactions have the same complex biological, environmental, and social effects. When such actions are integrated into management, they can have multiple benefits. For example, the month-long closure of an area to sink gillnet fishing may address the multiple aims of reducing fishing mortality in the multispecies fishery, eliminating the incidental take of harbor porpoise, and addressing conflicts between different fishing gear types.

The approaches outlined in this plan reflect the fact that fishing restrictions can serve multiple purposes and have multiple impacts. Some measures can be developed and implemented that expressly reduce bycatch, such as the existing measures that established gear restricted areas to allow escapement of undersized scup or the measure that requires weak links in lobster pot gear to help whales breakaway when entangled. But approaches can also be outlined for use in the development of fishery management programs that will meet multiple objectives, including the reduction of bycatch. Existing management provisions related to bycatch are summarized in Table 1. Some directly address bycatch concerns, while others are recognized as indirectly reducing bycatch, generally by controlling fishing effort. The indirect measures illustrate the interrelationship of bycatch to the broader management program.

Evaluations of bycatch have been done on a fishing gear basis, in analyses conducted under the MMPA and ESA, and in the recent report of the National Working Group on Bycatch, "Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs." Such evaluations are inconsistent with the underlying regulatory structure for fishery management, in which management plans are developed on a species/stock basis; as are stock assessments, management advice and the data that underpin them. Therefore, in order to enact measures to address bycatch, the RBAT notes that management action may be required to modify management plans under the authority of several management entities including the Councils, the Commission and the National Marine Fisheries Service (NOAA Fisheries).

Table 1. Existing Management Measures to Address Bycatch

FISHERY	DIRECT MEASURES	INDIRECT MEASURES
Northeast multispecies	mesh size restrictions; pair-trawl prohibition; 5% regulated species bycatch cap when fishing outside of DAS; raised footrope trawl; prohibition on brush sweep; inshore restricted roller gear; MMPA: pingers on gillnets; neutrally buoyant groundlines in some areas; area/time closures	effort controls (limited entry, DAS); closure areas; cod and haddock landings limits
Northern shrimp	finfish excluder	seasonal closures
Whiting, small mesh multispecies	raised footrope trawl required seasonally	incentives for use of large mesh in return for increased trip limits; small incidental landings can be made by non-directed vessels to reduce regulatory discard
Monkfish	minimum mesh requirement; MMPA: pingers at certain times/areas; weak links; neutrally buoyant groundlines in specific areas; specific area/time closures; rolling closures for sea turtles from NC north to VA in spring	limited entry and DAS restrictions; trip limits; minimum fish sizes
Sea scallop	restriction on use of trawl gear to reduce bycatch small scallops; minimum ring size; minimum mesh requirement for twine top (8" in most areas; 10" in reopened areas)	limited entry and DAS restrictions; limited possession by open access vessels; 7-man crew restriction; small dredge program;
Summer flounder	minimum mesh requirement; ESA: TEDS required in NC/VA	Limited entry; commercial quota with fishery closure when attained
Scup	minimum mesh requirement; seasonal Gear Restricted Area to minimize bycatch of juvenile scup in small mesh gear; escape vents in pots	Limited entry; commercial quota with fishery closure when attained
Black sea bass	minimum mesh size; escape vents in pots	commercial quota with fishery closure when attained
Deepsea red crab	non-trap gear prohibited	commercial quota with fishery closure when attained
Atlantic salmon	no possession allowed	
Tilefish	gear restricted to longline in directed fishery	limited entry; commercial quota with fishery closure when attained
Surfclam & ocean quahog		ITQs
Maine mahogany quahog	gear restricted by State of Maine	commercial quota with fishery closure when attained
Atlantic herring		TACs by fishing area, directed fishery closure when attained
Ilex & Loligo squid, Atlantic mackerel, butterfish	minimum mesh size for Loligo	limited entry fishery; commercial quota with directed fishery closure when attained

Spiny dogfish	MMPA: pingers required at certain times/areas; weak links in all gear; neutrally buoyant groundlines in some areas; seasonal area closures	Trip limits preclude directed fishe fishery closure when attained

MONITORING FY04

1. Data Analysis Project

During FY04, existing staff will update available data to provide quantitative estimates of bycatch by gear and by fishery for use in addressing bycatch issues. This analysis will also identify data gaps and outline sampling programs that could address those gaps. Analyses of information derived from the NOAA Fisheries Northeast Observer Program and from the Northeast Vessel Trip Report System are underway at the NEFSC. This work entails updated analyses of the magnitude of bycatch in major fishery sectors with emphasis on the otter trawl, gill net and scallop fleets. The precision of the estimates is also being determined. Information is currently updated through the second quarter of 2003. It is anticipated that analyses through 2003 will be available for the Bycatch Workshop scheduled for June 2004 (see Education/ Outreach, p. 14).

2. Increased Observer Coverage

In FY02, observer coverage was increased in the Northeast multispecies fishery. As a result of litigation, the NEFSC secured funding and increased the observer coverage in this fishery from <1% in trawl fisheries and 3-5% in gillnet fisheries to 5% in both. This coverage level is anticipated to continue at 5% as NOAA Fisheries has issued a Notice of Administrative Action noting that analysis at this level of coverage would provide sufficiently robust statistical data to evaluate bycatch and discards.

Further increases in observer coverage are necessary to characterize bycatch for many fisheries so that management solutions can be devised, and so that stock assessments can be improved (bycatch is a major component of mortality for many species) and so that an assessment of bycatch in longline fisheries can be made to determine whether or not a seabird bycatch problem exists. The National Working Group on Bycatch report examined the issue of bycatch monitoring programs on a national scale. The report, which identified high priority monitoring needs for ESA and MMPA species in the Northeast Region, has been used as the basis of initial recommendations for monitoring priorities in this plan. While the report did not examine fish bycatch issues in sufficient detail to be used directly in setting regional priorities, the RBAT determined that it would be appropriate to use the ESA/MMPA priorities because they include many of the commercial fisheries in which fish bycatch is also a concern. These priorities will be updated as new information becomes available, and will be reviewed at the Bycatch Workshop scheduled for June 2004, using the results of other initiatives in this plan.

In addition to these priorities, observer program priorities are developed by the NEFSC and fulfilled by the Northeast Fisheries Observer Program. A separate list of bycatch priorities is developed annually by ACCSP to identify high priority fisheries to receive funding for observer coverage. ACCSP partners are asked each fall to outline projected needs two years into the

future (i.e., the 2003 request asked for priorities for FY2005). Those requests are assembled for use at the annual meeting of the Bycatch Prioritization Committee, which occurs the following January/February. The Committee utilizes a bycatch prioritization matrix and the information submitted by the partners to develop a consensus on the top priorities for observer coverage. These priorities are used to allocate funds under an ACCSP Request for Proposals (RFP) issued the following May.

Table 2. Initial Monitoring Priorities

FISHERY	TARGET SPECIES	GEAR	BYCATCH SPECIES
New England gillnet	gadoids, flatfish, dogfish	demersal gillnet	harbor porpoise, large cetaceans
Mid-Atlantic gillnet	monkfish, dogfish	gillnet	harbor porpoise, bottlenose dolphin, pilot whale, common dolphin, sea turtles
Georges Bank, Mid-Atlantic scallop dredge	sea scallop	dredge	sea turtles
Mid-Atlantic small mesh otter trawl	squid, mackerel, butterfish	otter trawl	common dolphin, pilot whale
Atlantic trap/pot*	lobster, crab, black sea bass	pots or traps	Right whale, large cetaceans, leatherback turtles

*The National Working Group Report classified this gear as Lobster/crab trap. The RBAT expanded the definition to reflect the redesignation in the July 2003 List of Fisheries .

3. Establishment of a Process to Review/Update Quantitative Analyses

The existing Northeast Regional Stock Assessment Workshop (SAW) process will be used to produce the best available estimates of bycatch. The estimation of bycatch has been addressed by the SAW on two levels: as a regular component of stock assessments and as a general issue associated with analysis of observer data and estimation of discards. Although the focus would shift from discards of target species to bycatch of multiple species by various fisheries and gear groups, a peer-review of data analysis and methodology would be appropriate as a future SAW topic, presumably tasked to the Methods Working Group. Terms of reference for the SAW topic can include identification and prioritization of future research.

Once a data analysis and estimation protocol is approved by a benchmark SAW review, the methods could be applied each year to update estimates of species bycatch by fishery, though not necessarily through the SAW process. SAW priorities are determined by the Northeast Regional Coordinating Council (NRCC), which is composed of the leadership of NERO,

NEFSC, the Councils, and the Commission. If the NRCC determined that a new benchmark review was needed as a result of changes in the database or availability of new methods or technology, it would be scheduled for a SAW. Such benchmark SAW reviews may require a wide range of expertise, including experience with protected species and habitat. Depending on the scope of the updates and the frequency of benchmark reviews, such work will require funding and staff. An inventory of research recommendations made by past SAWs has been compiled and is available for use as benchmarks are prepared, with nearly 100 recommendations related to bycatch.

Quantitative estimates of marine mammal bycatch are reviewed by the Atlantic Scientific Review Group, through a process established under the MMPA. A similar process is being established for sea turtles.

MONITORING FY05

1. Increased Observer Coverage

Funding to provide increased observer coverage will be pursued for priority fisheries. The initial monitoring priorities identified in Table 2 will be updated as additional information becomes available in the future. The Bycatch Workshop scheduled for June 2004 will review the priorities using the results of other initiatives in this plan, and update the priorities with the involvement of Workshop participants.

2. Paying for Sea Days

The NEFSC Economic Branch is currently reviewing observer data related to vessel costs and identifying data gaps that require supplemental information to be collected from commercial vessels. The study will use funding to pay for sea days on appropriate commercial vessels in order to collect the necessary supplemental information. A similar approach (paying for sea days) could be used in FY05 for a separate study to collect bycatch information, if additional funding is available.

3. Database Review

If additional funding is available, funds should be allocated to conduct a database review. This review would identify and incorporate additional sources of data to profile bycatch in the region (the database equivalent of a literature review) Potential sources could include data collected by state researchers, data contained in protected species entanglement reports, and data from historic observer programs including those related to foreign fisheries joint venture activities. Anecdotal data sources should be incorporated in some way, at a minimum to identify possible bycatch issues that have not been witnessed on observed trips. These could include Vessel Trip Reports, the NERO inhouse “Fathoms Report,”and potentially, discussions with industry members.

RESEARCH FY04 - FY05

1. Research Priorities

After several discussions, the RBAT recommends that the initial top priority for bycatch research in the Northeast Region should be gear modification and the study of animal behavior (fish, marine mammal, sea turtle, sea bird) as it relates to the development of gear. Such studies should focus on the priority fisheries identified in Table 2, though other regional prioritization activities may focus on a smaller set of bycatch priorities.

There are several processes in the Northeast Region that establish program priorities. The NRCC, described previously, meets twice a year to incorporate the Council and Commission plans for developing or revising fishery management programs into the broader regional context and establish priorities for stock assessment updates and other related work. It is also the appropriate body to establish priorities for data collections to address data gaps in the context of other regional fishery management issues, and to set priorities for other bycatch related activities as well. Research priorities for protected species will continue to be established by Marine Mammal Take Reduction Teams and the Sea Turtle Strategy Team.

There are several regional programs that allocate funds or fishing quota to support research, and establish their own research priorities. These include the Northeast Consortium; the New England Fishery Management Council's Research Steering Committee, which establishes priorities for research to be funded through the NOAA Fisheries Cooperative Research Partners Initiative and the research set-aside program established within the Sea Scallop FMP; the Mid-Atlantic Fishery Management Council's Research Set Aside Committee, which establishes the priorities for research to be funded by commercial quota specifically set aside for research; and the ACCSP, which establishes priorities through its Bycatch Prioritization Committee.

2. Gear Engineering Working Group

Rhode Island Sea Grant has received funding through the Saltonstall-Kennedy Program (S-K) to establish a regional gear engineering working group over an 18-month period. Staff from both the NEFSC and the NERO are involved in this activity, and will be available to continue to participate in the working group activities after the S-K project is completed. This working group is intended to establish a network of researchers who will share information, including training and educational material, through meetings and the internet; develop a resource sharing program (to share equipment such as cameras, scales, methods); and share research results. This working group will meet in June 2004 in conjunction with the Bycatch Forum outlined under Outreach/Education.

MANAGEMENT FY04 - FY05

16. Management Activities to Address Bycatch

The Councils will be working on amendments to several fishery management plans during FY04/FY05. While some amendments (those identified by an asterisk) will address concerns that have been raised about bycatch, all of these actions will be required to consider bycatch

along with the other requirements of the MSA, MMPA and ESA. Some of these fisheries are also managed in state waters by the Commission under Interstate Fishery Management Plans (Atlantic herring, spiny dogfish, American lobster), and it is anticipated that those plans will also incorporate appropriate management measures to address bycatch as they are identified. Commission action to manage American lobster may require NOAA Fisheries action under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). NMFS staff from the NEFSC and NERO will participate in the Council processes to develop management alternatives for consideration; will review management actions for species interactions that require action under the MMPA or ESA; and will carry out management actions required for American lobster under ACFCMA. The following activities have been included in workplans for FY04 and FY05, though staffing levels may not be sufficient to allow all activities to be conducted within the timeframe:

*Sea Scallop and Multispecies Frameworks 16/39 to authorize sea scallop fishing in areas closed to conserve multispecies;

*Multispecies framework actions under Amendment 13, if approved, that would establish Special Area Access Programs (SAPs) to authorize fishing activities that result in low catches of species requiring conservation;

*Atlantic Herring Amendment 1 to evaluate a number of modifications to the management program including the possible establishment of limited entry;

Monkfish Amendment 2 to evaluate a number of modifications to the management program;

Whiting Amendment to evaluate a number of modifications to the management program including the possible establishment of limited entry;

Hagfish FMP, to consider establishing management for the Atlantic hagfish fishery, which is presently unmanaged;

*Skate FMP baseline review to determine if recent management actions in other fisheries have resulted in any impacts on skates that require management;

*Spiny dogfish Amendment 1 to evaluate a number of modifications to the management program including the possible establishment of limited entry;

*Atlantic mackerel, squid, butterfish Amendment 9 to consider permanently extending the *Illex* squid limited entry program and to evaluate bycatch and fishing gear impacts on Essential Fish Habitat;

Commission Addenda 2, 3, and 4 to the American Lobster IFMP, to establish management measures to meet area management goals; NOAA Fisheries actions under ACFCMA as appropriate.

It is hoped that the results of projects funded by NOAA Fisheries or supported through FMP research set-aside programs will produce results that will be used to develop measures to address bycatch in the management actions outlined above. In addition, nearly all of the fishery management programs in the Northeast Region include a process for periodic review and adjustment of management measures through framework actions or annual specification processes, which may also incorporate the results of the research outlined below. Most of the projects below, which are recently completed or underway, were funded through the following

NOAA Fisheries programs: Saltonstall-Kennedy (S-K), Marine Fisheries Initiative (MARFIN), Cooperative Research Partners Initiative (CRPI), National Fish and Wildlife Foundation/NMFS Mini-Grant Program (NFWF/NMFS), and internal NMFS programs (NMFS). In addition, some research was supported by FMP research set-aside programs (RSA).

Manomet Center for Conservation Studies, "Relating Fish Shape to Mesh Size: How Morphometric Variability Affects Trawl Net Selectivity in the Gulf of Maine." To collect morphometric measurements of key groundfish species during standard fishing operations on commercial fishing vessels in the Gulf of Maine. A simple model will be formulated to estimate the mesh size and configuration through which commercial fish species of any size will be most likely to escape. The model will enable managers and the fishing industry to predict potential retention rates of major commercial fish species for a range of mesh sizes and configurations. (S-K)

Massachusetts Division of Marine Fisheries, "Further Testing of Cod Avoiding Trawl Net Designs." To further verify the effectiveness of two cod-avoiding trawl net designs, the so-called "Ribas" and "Topless trawls," using larger versions of the designs and including night-time testing. (S-K)

New England Aquarium, "Juvenile Bycatch and Survival Assessment of Spiny Dogfish (*Squalus acanthias*) in a Western Atlantic Trawl Fishery." To conduct the first survivability study on elasmobranchs and more specifically, *Squalus acanthias*, that includes stress measurements. Investigate short term and long term survivorship following trawl exposure and discard. (S-K)

Manomet Center for Conservation Studies, "Development of Cod Excluder Devices for Northwest Atlantic Trawl Fisheries." To test the effectiveness of a new bycatch reduction device (Ex-It) in reducing the inadvertent catch of undersized fish in the northwest Atlantic. The study will focus primarily on retention of juvenile and undersized cod. This will be an international venture involving the Manomet Center for Conservation Sciences, Massachusetts Division of Marine Fisheries, Maine Department of Marine Resources, Canadian Department of Fisheries and Oceans, commercial fishermen, and industry input from Nordurnet, Iceland. Recommendations on the effectiveness of the bycatch reduction device will be made available to fisheries managers in both the USA and Canada. (S-K)

University of Rhode Island, "Effects of Increasing Mesh Size in the Multispecies Fisheries of New England Waters: Applied Research and Outreach." To conduct mesh size selectivity studies aboard a commercial fishing vessel and integrate the results of the study into yield-per-recruit (YPR) and spawning-stock biomass-per-recruit (SSBPR) models evaluating the effects of incrementally increasing mesh sizes. (S-K)

New England Aquarium, "Increasing Juvenile Cod Bycatch Survival in a Northwest Atlantic Longline Fishery." To: (1) augment the survival data already collected on juvenile cod bycatch caught by demersal longlines, (2) quantify mitigated survival of juvenile cod bycatch caught by demersal longlines when treated by immersion in solutions of potassium chloride, (3) quantify the degree of physiological stress experienced by juvenile cod bycatch caught by demersal longlines through the analysis of biological parameters in the blood, and (4) continue to solicit advice from longline fishermen relative to increasing the survival of groundfish discards. (S-K)

New England Aquarium Corporation, "Increasing Survival of Juvenile Atlantic Cod (*Gadus morhua*) and Haddock (*Melanogrammus aeglefinus*) in the Northwest Atlantic Demersal Longline Fishery." To build upon the selectivity work already conducted and investigate how different hauling strategies might affect wound size and juvenile groundfish survivability. Preliminary survival statistics from current longline work suggest that survival of juvenile bycatch is correlated to hooking wound magnitude and that effective selectivity against juveniles can be accomplished using modified circle hooks. (S-K)

NOAA Fisheries, Northeast Fisheries Science Center and Manomet Center for Conservation Science, "*Loligo* gear modification study." To conduct a quantitative assessment of the effectiveness of a large-mesh cylinder in reducing scup bycatch in the small mesh fishery targeting *Loligo* squid. (MARFIN)

University of New Hampshire, "Soft Species Separation System for the New England Multispecies Fishery." (CRPI)

Manomet Center for Conservation Science, "A Collaborative Program to Assess Possible Temporal Access to Closed Area II: Targeting Yellowtail Flounder Without Significant Bycatch of Cod and Haddock." (CRPI)

Manomet Center for Conservation Science, F/V's North Star, Lady Jane, Christopher Andrew, "Improving the Selective Efficiency of Trawl Gear with Escape Windows and Visual Stimuli." (CRPI)

Captain John Raymond/Manomet Center for Conservation Science, "A Collaborative Program to test the use of a Cod/Haddock Separator Panel in Trawl Nets." (CRPI)

Manomet Center for Conservation Science partnering with the Gulf of Maine Aquarium, "Assessing the Bycatch of Groundfish in the Monkfish Fishery." (CRPI)

University of Rhode Island, F/V Grandville Davis, and RIDEM, "Characterization of Bycatch Reduction from Codend Mesh Size Increases in the Directed Scup Bottom Trawl Fishery." (CRPI)

F/V Ocean Reporter and Allen Michael and Associates, "Development of Video Techniques for Bycatch Reduction Studies." (CRPI)

Virginia Institute of Marine Science, "Industry Trials of a Modified Sea Scallop Dredge to Minimize the Catch of Sea Turtles." (RSA)

"Zap Link." To develop and test a device that serves as a releasable link on the ground lines of lobster trawls. The link will part if a whale catches the ground line in its mouth, but will still allow normal operations of trawls. (USFWF/NMFS)

"Glow-in-the-Dark Rope of Controllable Stiffness." To test the hypothesis that whales will detect and avoid glowing ropes, preventing entanglement in line that does not bend. (USFWF/NMFS)

"Investigation of Alternative Ground Lines." To replace lobster/black sea bass traps that use ground lines with sinking and neutrally buoyant line to reduce entanglements in Management Area 5. Quarterly samples will be taken and workshops with industry will be conducted. (USFWF/NMFS)

"Lobster Gear Profile Separation Testing." To identify what part of the trap line profile separates, at what tension, and what portion remains with a series of gear tests. Twenty-four trials will be conducted using several gear combinations used to harvest lobster. (USFWF/NMFS)

"Using Microchip Technology to Identify Fishing Lines." To embed scanable microchips into various fishing lines to identify the fishery using the line responsible for the entanglement. (USFWF/NMFS)

"Design of Line Cutter to Prevent Entanglements." To develop a knotless line cutter and adapt it to other line tensions as required by other fisheries to prevent entanglements. (USFWF/NMFS)

"Ghost Gear Removal." To remove fishing gear debris to eliminate marine mammal entanglement on Cashes Ledge. A disposal system will be developed and an ongoing effort to ensure the area remains free of debris. (USFWF/NMFS)

State of Maine, "Maine Cooperative Management Plan for Large Whales and Sea Turtles." To maintain and expand Maine's sighting/surveillance and disentanglement networks, investigate and implement gear modifications and fishing strategies to reduce mortality of right whales and other large whales. (USFWF/NMFS)

Commonwealth of Massachusetts, "Massachusetts Right Whale Conservation Plan." To maintain and improve right whale programs in Massachusetts and undertake new initiatives for take reductions. The project will continue a well implemented survey off the Massachusetts coast. (USFWF/NMFS)

"Underwater Video Project." To study buoy line and ground line behaviors where the buoy lines and ground lines are constructed of various combinations of sink, float and neutrally buoyant line. (NMFS)

"Development of Non-Floating Line." To develop line that can be used in the fixed gear fisheries on all bottom types that is more abrasion resistant then non-floating lines currently being used. (NMFS)

"Development of a Float Line." To develop a line that has an 1,100 lb breaking strength that can be used by the gillnet fishery in the head rope of a net panel. (NMFS)

"Develop Sighting Skills." Outreach and education to develop fisher skills to sight and identify whales and communicate through the sightings call system to prevent the entanglement of sighted animals (NMFS).

The Councils have included bycatch priorities in their RFPs for research to be supported by upcoming FMP research set-aside programs. The New England Council's RFP for sea scallop projects for the fishing year that begins March 2004 seeks demonstration projects to identify ways to reduce discard mortality, and identifies the evaluation of gear to reduce sea turtle and groundfish bycatch as a high priority.

The Mid-Atlantic Council's RFP soliciting projects to be supported by research quota set asides of summer flounder, scup, black sea bass, bluefish, *Loligo* squid, *Illex* squid, Atlantic mackerel, and/or butterfish for the fishing year that begins January 2005 solicits several types of projects to address bycatch, which are listed below.

–Studies of scallop gear modifications to reduce bycatch of summer flounder;

–Studies on incidental catch and discard mortality of dogfish in fisheries targeting other Mid-Atlantic species, with emphasis on gillnet, trawl, and hook-and-line gear;

--Summer flounder discard studies to distinguish regulatory discards from discards due to gear design;

--Discard studies in the *Loligo* and scup fisheries, including *Loligo* gear modifications to reduce bycatch of scup and other species;

--Improved estimates of recreational discards in the summer flounder, scup, black sea bass, and bluefish fisheries;

--Measures to decrease discards associated with increases in minimum fish size;

--Mesh selectivity studies for summer flounder, scup, squid, black sea bass and butterfish;

--Evaluation of pot gear escape vent sizes and shapes for black sea bass and scup;

--Estimation of mortality of black sea bass left in pots during the closed season;

--Studies of bluefish, summer flounder, scup, and black sea bass hooking mortality by size of fish;

--Data to better characterize length composition of summer flounder, scup, and black sea bass discards;

--Development of optimum sampling levels to estimate discards of summer flounder, scup, and black sea bass;

1. Consideration of Programs to Create Incentives to Reduce Bycatch

The RBAT recommends in this Plan that incentives should be considered to encourage harvesters to address bycatch. The RBAT is aware that management measures that establish harvest rights, such as Individual Transferable Quotas and harvest cooperatives, can also result in reduced bycatch. As an example, the ability to purchase or lease harvest shares can be used by harvesters to reduce their regulatory discards. As another example, harvesters joined by a contract in harvest cooperatives that fish under management programs that establish bycatch quotas for some species have demonstrated that they will share information to avoid bycatch in order to keep from attaining the bycatch quota, and having the directed fishery closed as a result. The RBAT recommends that managers should encourage consideration of such harvest rights arrangements to resolve bycatch as well as other management problems.

A recent management measure adopted by the New England Fishery Management Council has yet to be reviewed by NOAA Fisheries, but could provide an example of a measure that would provide incentives for reducing bycatch. The Council's proposed Amendment 13 to the Multispecies FMP would require current fishing levels to be reduced for some stocks such as Georges Bank cod, while fishing could be increased for other species that are often caught on the same fishing trips, such as Georges Bank haddock. To address this problem, Amendment 13 would specify fishing days-at-sea (DAS) as Category A days and Category B days. The total number of A days would be calculated to result in a level of fishing effort that would achieve fishing mortality reduction targets for all multispecies stocks. The remaining B days could only be used in well-defined ways that would result in little or no bycatch of fish from the stocks that need the most protection. In order for harvesters to be able to utilize B days, it would be necessary to identify where and how they could utilize the B days without unacceptable bycatch. The Council expects that this measure would create a stronger incentive

for harvesters to develop methods to avoid bycatch of species in need of conservation than would restrictive possession limits alone.

EDUCATION/OUTREACH FY04

1. Bycatch Workshop

Funding of $30,000-40,000 is requested for a Regional Bycatch Workshop to be held in June 2004, with participants from NOAA Fisheries, the Councils, the Commission, the ACCSP, Sea Grant Programs, the states, commercial and recreational fishing sectors, environmental organizations and academics. Also involved will be members of take reduction teams established to consider sea turtle and marine mammal issues. The participants will consider all aspects of the bycatch issues facing the Northeast Region including management aspects, research aspects, legal aspects including international relations, data issues, monitoring issues, and enforcement issues. The Workshop will use the Regional Bycatch Implementation Plan as the basis for gathering the views of our constituents and partners concerning relative priorities and specific objectives in the bycatch plan. The Workshop will result in a proceedings publication, presented as a working document so that it can be available in a timely manner. The Workshop will allow the Northeast Region to take a collaborative approach to the problem of addressing bycatch, and the plan may be modified as a result of views expressed by individual workshop participants. Taking a cooperative approach to this issue will ensure that NOAA Fisheries can move forward in a manner that is supported by our constituents

The current RBAT will serve as the Steering Committee for this Bycatch Workshop. Rhode Island Sea Grant has agreed to co-coordinate the Workshop because the staff fully understands the need for a collaborative effort to find solutions to the problem of bycatch. Other regional sea grant programs may also want to be involved. Because interest in the Workshop is likely to be high, this funding would include facilities costs for a large meeting space with breakout rooms for working meetings to focus on the specific topics identified below. In order to keep the working meetings manageable, direct participation in working meetings is likely to be limited to a group of panelists, with audience attendance and questions. The funding requested does not include travel costs for NOAA Fisheries employees.

The topical working meetings will allow individual constituents to identify their relative priorities and objectives in several areas. The topics, which may evolve further during development of the Workshop, currently include:

Legal Issues: e.g., clarifying the term “to the extent practicable;” identifying any bycatch issues that have an international aspect;

Data Issues: e.g., obtaining better discard data to improve stock assessments;

Monitoring Issues: e.g., developing appropriate sampling strategies;

Management Issues: e.g., establishing bycatch priorities that reflect the relative importance of fisheries in the region in multiple dimensions (biological, economic); reconciling gear-based information with species-based management programs; developing a process to

incorporate research results into management; developing incentives for harvesters to avoid bycatch; and developing incentives for harvesters to accurately report bycatch;

Research Issues: e.g., coordinating regional research; improving the Exempted Fishing Permit process, sharing research results, maximizing available funds by avoiding duplicative experimental work;

Science Issues: e.g., identifying bycatch information critical to stock assessments;

Protected Species Issues: e.g., coordinating protected species bycatch work with fisheries bycatch work;

Enforcement Issues: e.g., developing bycatch strategies that can be enforced.

2. Outreach Coordinator

The Northeast Regional Office is currently recruiting for an Outreach Coordinator, who will, among other activities, work on the publicity for the Bycatch Workshop, and other bycatch related outreach activities as they are identified.

3. Outreach Staff for Bycatch

Funding is requested for two new positions in the Northeast Regional Office to focus on fishery bycatch issues. The first (Bycatch Outreach Specialist, Band II/III) would serve as a focal point to coordinate regional efforts to address bycatch. The second (Bycatch Gear Specialist, Band II/III) would focus on working with industry to develop gear solutions to bycatch problems. The gear specialist would work with constituents to develop new gear solutions, and would conduct education and outreach activities when new gears were developed and implemented.

EDUCATION/OUTREACH FY05

1. Annual Bycatch Forum

Annual funding of $8,000 is requested for FY2005 and beyond to support an annual Bycatch Forum. This would be a smaller event than the FY04 Bycatch Workshop, and would be designed to review all of the bycatch-related work conducted over the year by NOAA Fisheries or any of the other interested parties in the region. The results of research projects funded by a wide range of sources in the region would be presented and reviewed, allowing information to be shared widely with harvesters, managers and researchers. Progress would be evaluated, results would be publicized, and problems would be debated.

This Bycatch Forum would become an annual event, in order to maximize the sharing of knowledge, build on successes, and move forward to solve bycatch problems. This would provide an annual opportunity for members of the Gear Research Working Group to share information, and for constituents to identify specific topics that could be addressed in bycatch research. In addition to allowing researchers and managers to share current data and research results, this would provide an opportunity for commercial and recreational harvesters to share their field observations, their ideas on bycatch reduction strategies and research initiatives, and

their assessment of potential economic and social impacts associated with various bycatch reduction strategies. Environmental organizations would be provided with an opportunity to receive first hand information on the extent of the bycatch problem and progress being made to reduce it, as well as an opportunity to work with managers and harvesters in finding solutions.

APPENDIX A

Members of the Regional Bycatch Assessment Team (RBAT)

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